

Fair Value Accounting Practices and Efficiency of Banks:

A Theoretical Perspective

S G Sisira Dharmasri Jayasekara¹, Dr. K L Wasantha Perera² & Dr. A Roshan Ajward³

¹ Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

² Senior Lecturer, Department of Finance, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Nugegopda, Sri Lanka

³ Senior Lecturer, Department of Accounting, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

Correspondence: S G Sisira Dharmasri Jayasekara, Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Nugegoda, Sri Lanka

Received: September 4, 2018

Accepted: September 26, 2018

Online Published: September 27, 2018

doi:10.5430/afr.v7n4p66

URL: <https://doi.org/10.5430/afr.v7n4p66>

Abstract

This conceptual paper discusses the impact of fair value accounting practices on performance of commercial banks in relation to the established banking theories i.e. Credit creation, fractional reserve and financial intermediation theory. These theories are discussed in view of historical cost accounting principles and fair valued accounting principles considering the performance in terms of efficiency during different stages of economic conditions. The analysis shows that fair value accounting practices in banks create reserves in economic booms improving efficiency and deteriorate created reserves in economic downturns causing financial crises. Enhanced financial performance in terms of unrealized gains improves the overall efficiency of banks in view of the intermediation approach of the financial intermediation theory. Therefore, it can be interpreted that external factors such as accounting, infrastructure, and technology can influence efficiency of the financial intermediation process. This is the first study to discuss the implications of fair value accounting on banking theory in view of performance of banks and stability of financial system.

Keywords: fair value, historical cost, efficiency and data envelopment analysis

JEL Codes: E32, G21, M41

1. Introduction

At present, there is a global trend towards adopting International Financial Reporting Standards (IFRS) in banking and finance industry which are based on fair values. IFRS Foundation and Financial Accounting Standards Board are working towards developing a single set of high-quality global accounting standards while the international organisations including international Monetary Fund, World Bank, and Financial Stability Board have extended their support for the objective of achieving a single set of high-quality global accounting standards (World Bank, 2017; FSB, 2015; G 20, 2012). IFRS Foundation (2017) has profiled 150 jurisdictions in terms of IFRS adoption and found that 126 jurisdictions which is 84 per cent of the total profiles require IFRS for all or most domestic publicly accountable entities in their capital markets.

In this background, information provided in financial statements about the performance of a particular entity is required to be understood and interpreted based on the conventions or the principles behind the reporting. The principles behind the financial data are broadly in two types i.e. historical cost and current values. Under the historical cost principles, the price of an asset on the balance sheet is reported based on its nominal or original cost when acquired by an entity. However, there is an exception for inventories which are recognized at the lower of cost or market value. Revenues and expenses are recognized when they are turned into accounts receivable, payable or cash under the realization principle. On the other hand, current value accounting, which is often referred as fair value accounting, recognizes the value at which an asset or liability could be exchanged between knowledgeable and willing parties in an arm's length transaction. Current value accounting is a generic term, which often represents fair values. However, there are exceptions of realization principle under the current values also when the assets do not

have a market to ascertain fair values. In such cases, assets and liabilities are valued at a current value, usually replacement cost for the assets which are worth replacing and deprival value for assets which are not worth replacing. In this study, it is assumed that current value and fair value of assets and liabilities are equal, despite the slight differences between current value and fair value accounting.

1.1 Problem Statement

Studies on the performance of banks and financial system stability have long been a topic of discussion in many countries over the last few decades. These discussions have provided rich insights into the financial performance, efficiency, and different determinant factors of financial performance, efficiency, and financial system stability. Majority of those studies have been carried out based on the data, which were prepared in terms of historical cost principles (e.g. Sherman & Gold, 1985; Ferrier & Lovell, 1990; Fried, et al., 1993; Berger & Humphrey, 1997; Bhattacharya, et al., 1997; Sathye, 2001; Jayasekara, 2014 and, 2015). Adoption of IFRS, which are based on fair values, is an emerging area that is needed to be studied in a broad view in terms of financial performance of banks, efficiency of banks, and financial system stability in view of financial intermediation theory. In this conceptual paper, it is expected to review the impact of fair value accounting practices on the efficiency of banks in respect of intermediary approach (Sealey & Lindley, 1977; Berger & Mester, 1997; DeYoung & Hasan, 1998; Wahida, 2011; Jayasekara, 2015; Kevork, et al., 2017; Fukuyama & Weber, 2017; Silva, et al., 2017) under the financial intermediation theory. Jayasekara (2015) states that fair value accounting may have some impact on efficiency of financial institutions indicating a potential impact on financial intermediation theory. Thus, the problems which are addressed in this study will be “Do the fair value accounting practices affect the efficiency of banks?”. In this background, studying the impact of fair value accounting on efficiency of banks is useful in making policy decisions in order to maintain financial system stability through sound banks.

The fair value concept in the banking sector emerged as a result of introducing accounting standards for financial instruments (IAS 39, IFRS 9 and IFRS 7). The financial performance of banks is externally measured using publicly disclosed financial results, the reliability of which depends on the accounting conventions used in preparing financial statements. Schinasi (2005) states that accounting is an important component in the infrastructure of a financial system and may affect the stability of that financial system. Financial performance of a bank is usually measured using accounting ratios such as return on assets (ROA), return on equity (ROE) and net interest margin (Flamini, et al., 2009; Naceur & Omran, 2010; Robin, et al., 2018). Volatility of these ratios over the period of time is common due to various reasons such as competition, changes in policies and regulations, changes in business environment, and changes in management etc. (See figure 1). Jayasekara et al. (2018) states that the fair value accounting practices affect the financial performance of banks depending on the status of the economic conditions.

Therefore, studying the impact of fair value accounting practices on efficiency of banks in different phases of the business cycle or economic conditions is essential for the policy makers to understand the soundness of individual banks as well as the stability of the financial system. If fair value accounting practices improve the efficiency of banks over the historical cost principles, the additional improvement which were generated using unrealized gains can be used to generate more output expanding credit portfolios of banks. Growth of credit depends on the level of capital of each bank. In this background, a study on impact of fair value accounting on the performance of commercial banks in terms of efficiency is timely for maintaining financial system stability.

The remainder of this paper is structured as follows. Section 2 provides a critical literature review on performance of banks in terms of efficiency linking them with the intermediation approach of the financial intermediation theory. Section 3 discusses the proposed conceptual analysis of performance of banks in terms of efficiency, and section 4 concludes.

2. Literature Review

Historical cost was an important component of banking theories which were developed over different time periods. However, evolution of fair value accounting has not been discussed in view of different banking theories. In banking literature, three distinct banking-related theories can be identified i.e. credit creation theory, fractional reserve theory, and financial intermediation theory. The oldest, credit creation theory, maintains that each bank can individually create money out of nothing through accounting operations, for example when extending a loan. The fractional reserve theory states that only the banking system as a whole can collectively create money while each individual bank is a mere financial intermediary, gathering deposits and lending those out. The financial intermediation theory considers banks as financial intermediaries both individually and collectively, rendering them indistinguishable from other non-bank financial institutions in their behaviour, especially concerning the deposit and lending businesses, being unable to create money individually or collectively.

The performance of banks is assessed in different perspectives such as financial performance and efficiency of banks. Accounting ratios are used in assessing financial performance and different other techniques are used to measure efficiency of banks. The efficiency can be used to evaluate and compare the performance of a bank in relation to the performance of another bank, particularly with compared to a best practice. Efficiency measures provide a numerical efficiency value, which facilitates ranking banks against each other, and a bank is considered efficient when it uses a right proportion of appropriate amount of inputs in the intermediation process. The efficiency measures relative ability of utilizing resources in an efficient manner in generating outputs which is a better measure in capturing the quality of banks and their functions in the economy. Jayasekara (2015) states that at least four different approaches (the econometric frontier approach; the thick frontier approach; the distribution-free approach; and the data envelopment analysis) have been evolved to analyse the efficiency of financial institutions which differ in the assumptions placed on the probability distributions of the X-efficiency (deviations from the efficient frontier) differences and unrelated random errors.

This paper conceptualises the impact of fair value accounting on the performance of banks in terms of efficiency using Data Envelopment Analysis (DEA) which is used to measure efficiency. The literature suggests two approaches under the DEA to measure efficiency of banks i.e. production approach and intermediation approach. Under the production approach, banks are considered as producers of services for their account holders (Benston, 1965). Berger and Humphrey (1997) suggest that the production approach is more appropriate for measuring efficiency of branches, as such units are mainly engaged in processing documents and mobilising deposits for account holders.

On the other hand, the intermediation approach assumes that a bank acts as an intermediary between depositors and borrowers. Various studies have used different input and output variables to measure efficiency. Total loans and securities are considered as outputs, whereas deposits along with labour and physical capital are considered as inputs (Charnes et al.1978; Bhattacharyya et al., 1997; Sathye, 2001). Silva,et al.(2017) consider interest expenses and non-interest expenses as input variables while deposits, loans and liquid assets are considered as output variables. There are some other studies which consider deposits, labour, and capital as inputs and loans and investments as outputs in the intermediary process (Berger & Mester, 1997; DeYoung & Hasan, 1998; Wahida, 2011; Jayasekara, 2015;Kevork,et al., 2017;Fukuyama & Weber, 2017).

Casu et al, (2006) state that banks have been attacked by the globalization, competition from non-banking financial institutions and volatile market dynamic pressures. In such a context, banks are required to improve efficiency through performance and bank may manipulate performance through different accounting conventions for their survival in a very competitive environment. Some other previous studies on fair value accounting suggest that with an alternative accounting treatment, one might therefore expect bank managers to alter their behavior in a fair value accounting environment (Fiechter, 2011;Kaaya, 2015; Schipper, 1989 ;Guo, 2017). Further, Greiner (2015) provides evidence that banks achieve opportunistic transition adjustments during the implementation Period of fair values. He further provides additional evidence that, post FVO implementation, adopters have fewer incentives for earnings and regulatory capital management but only among banks with net positive FVO earnings. Wu, et al., (2016) having studied the presence of adverse selection among firms adopting the fair value option for liabilities (FVOL) embedded in Statement of Financial Accounting Standards (SFAS) 159 during the financial crisis, state that the FVOL is a controversial accounting choice because it allows firms to increase earnings when credit quality deteriorates. They found that that firms with higher credit risk, lower profitability, and negative abnormal stock returns are more likely to adopt the FVOL, and that these firms exhibit negative abnormal stock returns after adoption. This shows that the state of economy is a significant factor in manipulating financial performance of banks under the fair value option.

Dimitras, et al., (2010) having studied the changes in the accounting standards on the efficiency estimates of 10 Greek banks using the financial data of years 2004 and 2005 under DEA, find that the change in accounting rules results in important differences in estimated efficiency of the banks in the sample. However, they do not explain whether the fair value accounting improve the efficiency over historical cost principles. In another study, Rodríguez-Pérez, et al., (2011) having studied the efficiency scores obtained from financial statements prepared under the historical cost approach, and the fair value approach using a sample of Spanish insurance firms, conclude that there are only a few cases where a change in the valuation basis leads to a relevant change in DEA scores.

Dimitras, et al., (2018) having studied how bank efficiency estimates are influenced by the shift from local GAAP to IFRS in EU using financial statements prepared during the transition period and stochastic frontier analysis to obtain cost and profit efficiency estimates for a sample of 141 banks from 15 countries, find that the bank efficiency

estimates have been significantly influenced by the transition to IFRS. This study has considered the profit and cost efficiency which is different to the efficiency under the DEA.

3. Conceptual Analysis

The three main theories of banking discussed earlier have been dominant in different time period and still there are supporters for each theory. Werner (2014) states that empirical tests on these theories were very limited despite the pivotal significance for research and policies. He studied the actual operations and accounting entries taking place when a new bank loan is granted and paid out. This study was based on transactions which were performed by the financial institutions. On the other hand, fair value accounting is not based on the transactions which results in creating unrealised gains or losses. This aspect has not been considered by previous studies in terms of the three theories discussed earlier linking with the performance of banks in terms of efficiency. Therefore, moving to fair value based financial reporting from historical cost principles may affect not only the efficiency of individual banks, but also the performance of the financial system.

Financial system stability issues arise as a result of the risks faced by the main components of the financial system. Houben, et al. (2004) identify sources of risks to financial system stability in view of the main components of the system as well as macroeconomic disturbances where accounting, supervision and regulation are identified under the infrastructure of the financial system. Therefore, changes in accounting practices may affect the performance of banks as well as financial system stability.

Under the DEA, the efficiency is measured using input and output variables (Sherman & Gold, 1985; Ferrier & Lovell, 1990; Fried, Lovell, & Eeckaut, 1993; Berger & Humphrey, 1997; Bhattacharya, Lovell, & Sahay, 1997; Sathye, 2001; Jayasekara, 2014 and, 2015; Kevork, et al., 2017; Fukuyama & Weber, 2017; Silva, et al. 2017).

The banking theories discussed so far have ignored the implications of fair value accounting. Fair value adjustments fluctuate the value of assets and liabilities based on the position of business and financial cycles. Financial cycles denote self-reinforcing interactions between perceptions of value and risk, attitudes towards risk and financing constraints, which translate into booms followed by busts (Borio, 2014). Some studies argue that the interactions could amplify economic fluctuations and possibly lead to serious financial distress and economic dislocations (Borio, et al., 2001; Danielsson, Shin, & Zigrand, 2004; Kashyap & Stein, 2004; Brunnermeier, et al., 2009; Adrian & Shin, 2010; Borio, 2014). Therefore, focus on additional capital formation by way of unrealized gains using fair value accounting in different stages of financial and business cycles needs to be studied in view of performance of banks in terms of efficiency as well as the financial system stability. Drehmann, et al. (2012) arguably state that the most parsimonious description of the financial cycle is in terms of credit and property prices. Borio, (2014) states that credit and property prices tend to co-vary rather closely with each other, especially at low frequencies, confirming the importance of credit in the financing of construction and the purchase of property. Therefore, banks build more reserves under a regime of fair value accounting when an economy performs well in the short run giving them more opportunities to expand loan portfolios as a result of increased capital. In downturns, banks will face severe liquidity issues as a result of erosion of built reserves and fall in value of assets.

On the other hand, banking regulation principles have evolved from Basel I to Basel III strengthening the capital structure of financial institutions to absorb losses during financial crises. Basel I required banks which were undercapitalized to improve their capital ratios in order to strengthen the stability. However, Basel I was lacked broader elements to assess the risk potential of a bank in addition to the credit risk and capital ratios. Basel II filled the gap concentrating on a much broader view of risks in the financial industry covering risk assessment and management by way of a three-pillar approach. The Basel II framework was heavily criticized subsequent to the financial crisis of 2008 since the average levels of capital requirements enforced were inadequate, the assessment of credit risks was improperly delegated to inappropriate non-banking institutions, and the limitations of the internal models which were used to measure risk exposures which provided incentives to banks to hide risky exposures from the balance sheets. As a measure of fostering transparency and accountability within the international banking community, Basel II requires banks to maintain healthier amounts of capital in the form of equity excluding preferred equity and other hybrid capital instruments in contrast to the Tier I core capital under the Basel II. One of the core areas allowed under the Basel III framework is the fair value assessment. The core of the Basel recommendations is focused on the maintenance of capital. In assessing efficiency of banks under the DEA, capital is used as an input to generate output by way of loans.

Therefore, assessing the impact of fair value practices is more appropriate in terms of efficiency of banks since fair value accounting practices create reserves by way of unrealised gains in economic booms and deteriorate created reserves as a result of losses during economic downturns. Figure 1 shows the average ROA before tax of four

categories of economies in terms of the World Bank classification of economies, from 1996 to 2015. All the categories show a similar trend of ROA over the time period. However, Low income countries show significantly higher average ROA as well as high volatility for the period as a result of exposed high risk of such countries. Further, the higher average ROA of that category may be due to the technical deficiencies of the adopted models and manipulation of fair value practices. This context warrants studying the impact of fair value accounting practices in terms of efficacy of banks in different stages of business and financial cycles.

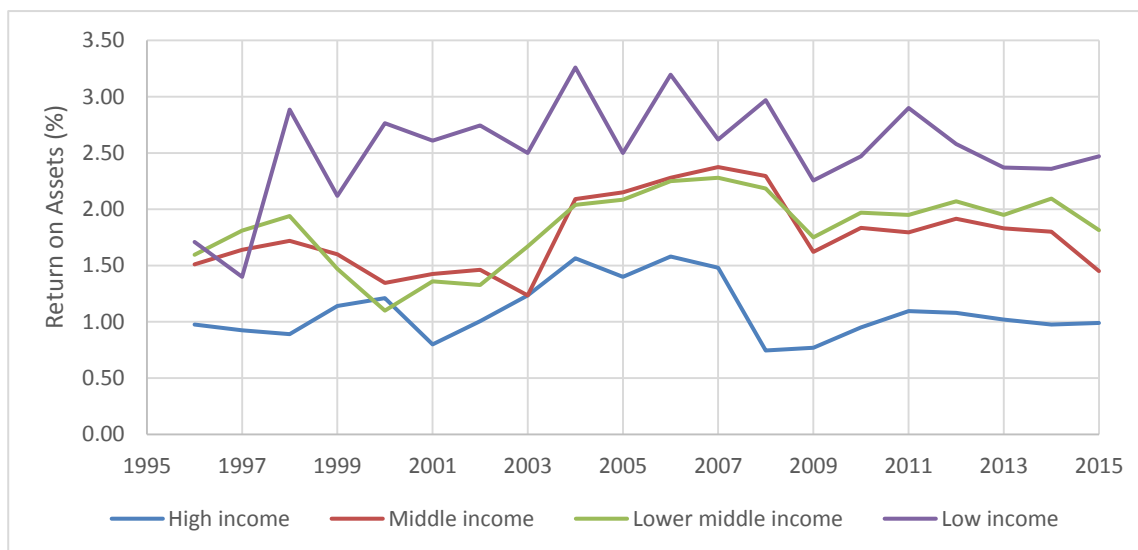


Figure 1. Movement of return on assets of banks of different group of countries during 1996-2015

Source: World Bank -The Global Financial Development Database

In this background, the credit creation theory cannot be extended based on the development of fair value accounting practices because the theory assumes that it is not required to gather deposits or create reserves prior to lending. Under a fair value regime, banks generate higher returns through fair value adjustments when the economy performs well and low or negative returns during economic downturns. However, Werner (2016) recognizes deposit creation as the act of recording a deposit transaction as an accounting entry. He argues that if the adjustment of an account is termed the creation of such an accounting record, by this definition banks are of course creating entries whenever a transaction is made. Under the fair value accounting, banks can create more reserves/capital as a result of unrealized gains which are generated during economic booms. However, these reserves are not based on transactions as proposed by Werner (2016). In contrast, under the fractional reserve theory, the banking system in aggregate creates money (Samuelson, 1948). Samuelson & Nordhaus (1995) explains the fractional reserve theory more clearly and unambiguously stating that the central bank-created reserves are said to be used by banks as an input and then transformed into a much larger amount of bank money.

In contrast, financial intermediation theory views banks as mere financial intermediaries who cannot create money individually or collectively. At present, financial intermediation theory is dominant, and it holds that banks are merely financial intermediaries, not different from other non-bank financial institutions. The banks gather deposits and lend these out as shown in Figure 2.

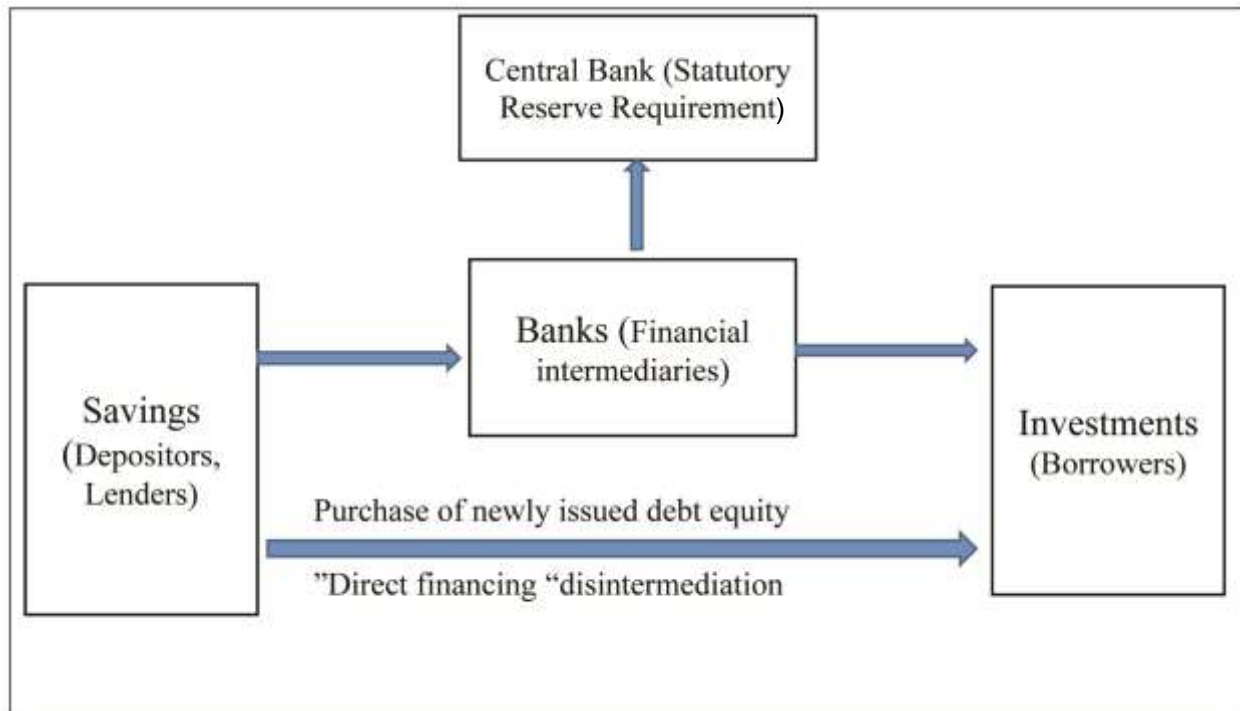


Figure 2. Financial Intermediation Theory

Source: (Werner, 2016)

A common feature of the financial intermediation process is that banks create liquidity by borrowing short and lending long (Dewatripont, et al., 2010), which means that banks borrow from depositors with short term maturities and lend to borrowers at longer term maturities. The financial intermediation theory has been discussed and supported by well-known economists. Some examples are: (Keynes , 1936; Gurley & Shaw, 1955; Tobin, 1963; Tobin, 1969; Diamond & Dybvig, 1983; Gorton & Pennacchi, 1990; Diamond, 1996; Diamond, 1991 and 1997; Diamond & Rajan, 2001; Eatwell, et al., 1989; Fulghieri & Rovelli , 1998; Bencivenga & Smith, 1991; Bernanke & Gertler, 1995; Myers & Rajan, 1998; Kashyap, et al., 2002; Allen & Gale, 2004; Allen & Santomero, 2001; Matthews & Thompson, 2005 ; Casu, et al., 2006; Dewatripont, et al., 2010; Gertler & Kiyotaki, 2011; Werner, 2014; Werner, 2016 ; Stein , 2014) and others.

Sealey & Lindley (1977) view financial intermediation theory in a different way as a production theory for deposit taking institutions. According to them, the transformation process for a financial firm involves the borrowing of funds from surplus spending units and lending those funds to deficit spending units. The production process of the financial firm, from the firm's viewpoint, is a multistage production process involving intermediate outputs, where loanable funds, borrowed from depositors and serviced by the firm with the use of capital, labor and material inputs, are used in the production of earning assets. This approach has been used by many studies to evaluate the efficiency of financial institutions in terms of input and output variables in the production process (Sherman & Gold, 1985; Ferrier & Lovell, 1990; Fried, et al., 1993; Berger & Humphrey, 1997; Bhattacharya, Lovell, & Sahay, 1997; Sathye, 2001; Jayasekara, 2014 and , 2015). In this theoretical context, increased capital or reserve by way of unrealised fair value adjustment will improve the financial intermediation process of banks as a result of changing accounting practices .Schinasi, (2005) shows that accounting practices influence the financial system stability. Accordingly, transformation process of financial intermediation can generate additional capital as a result of increased financial performance in economic booms under the fair value accounting while providing opportunities to lend more as per the capital adequacy requirements of the banks. However, this expansion will be contracted at a time of economic downturns and may lead for financial crises as a result of fall in value of assets. The revised transformation process under a fair value regime can be shown as follows.

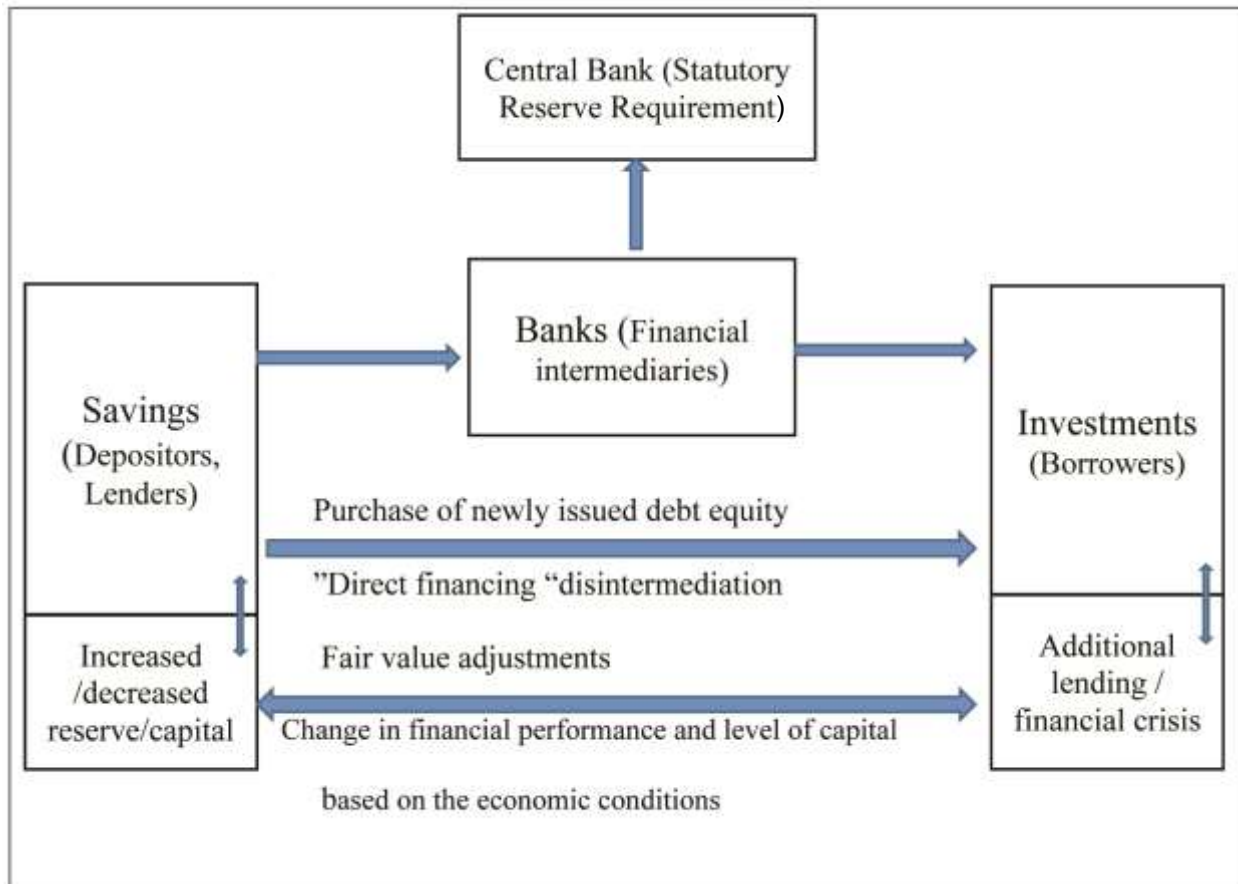


Figure 3. Revised Financial Intermediation process after recognizing unrealized gains and losses under fair value adjustments

Source: compiled by the authors

As per the figure 3, fair value accounting results in earning more profits during economic booms by way of unrealised gains ultimately increasing the position of capital of a bank. The improved capital position facilitate banks to lend more within capital adequacy requirements. This transformation process can be interpreted as the improvement of financial performance through intermediation by way of external influence which are outside from the deficit and surplus sectors under the theory. This can be viewed as the improvement of intermediation process of the financial intermediation theory by way creative accounting practices. This position is more riskier in economic downturns which may lead for financial crises where a bank has eroded the built unrealised gains as a result of fall in value of assets. In this context, the impact of fair value accounting practices on the financial performance of banks and financial system stability is conceptualised as follows.

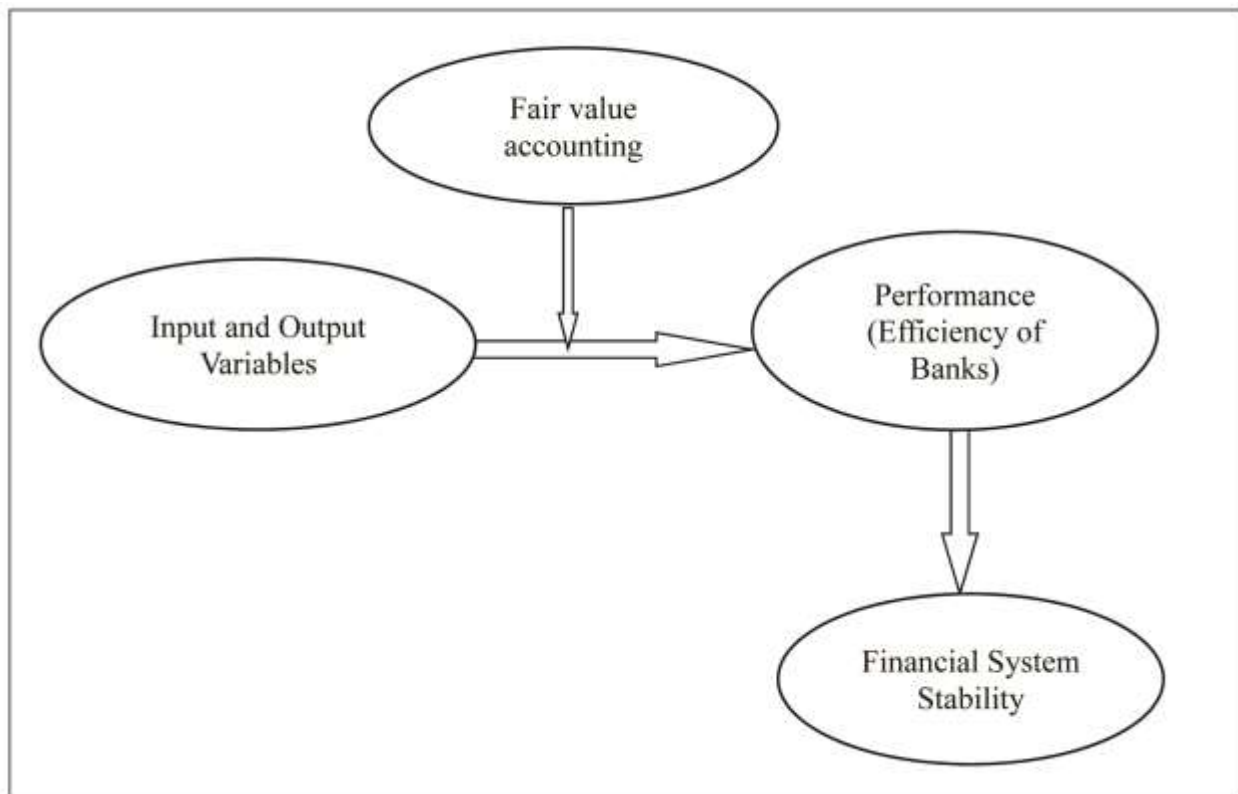


Figure 4. Framework of Accounting Impact on Maintaining Financial System Stability

Source: Compiled by the authors

There were no published work on this area of research observed in reputed journals which indicate the necessity of studies on impact of fair value accounting on the performance of banks in terms of efficiency, banking theory, and financial system stability.

4. Conclusion

Adopting fair value-based accounting practices in banking industry has been compulsory in most of jurisdictions deviating from traditional historical cost accounting practices. However, fair values practices create concerns over the reliability since they are not based on the transactions. Financial performance of banks over the time has been highly volatile during last few decades (see Figure 1). During this period, accounting regime of historical cost has begun to shift to fair values. Theories of banking also have evolved from credit creation theory to the financial intermediation theory, which is mostly dominant today. However, still there are supporters of credit creation theory as well as of the fractional reserve theory. The foundation of the three major theories of banking is mostly based on the financial data which were prepared on historical cost accounting principles. However, recent development in fair value accounting in the banking sector has created some concerns over the banking theories in view of financial performance of banks in terms of efficiency as well as the financial system stability.

Efficiency is measured using input and output variables. There are different approaches to measure efficiency of banks in different perspectives. This conceptual paper considers the efficiency of banks under the DEA. The efficiency of banks will be improved during a period of economic booms as a result of recognized unrealized gains. However, this position will be reversed during economic downturns. Credit expansion during the economic booms due to the increased capital through unrealized gains may create crises at economic downturns. Quality of credit of banks will erode during economic booms due to the high pressure to expand credit portfolios as a result of increased capital.

In this conceptual background, banks generate higher returns during economic booms as a result of unrealized gains recognized by way of fair value adjustments. However, the position will be reversed during economic downturns as a result of fall in value of assets. This increased reserves cannot be linked with credit creation theory since it is not a prerequisite under the theory. However, considering the process as producers as suggested by Sealey & Lindley (1977), under the financial intermediation theory in intermediation approach, created reserves by way of fair value

adjustments can improve overall efficiency of banks during economic booms in terms of financial performance and crises during economic downturns. Accordingly, we can suggest that external factors of the financial infrastructure of the financial system can influence the efficiency of intermediation process among intermediaries, surplus and deficit sectors. The value creation through fair value adjustments through financial intermediation process is evidenced that bank managers can manipulate performance through new policies, procedures and regulations. Accordingly, it is warranted to conduct an empirical study to measure the impact of fair values on the performance of banks as well as on the financial system stability in terms of financial intermediation theory. This conceptualisation will open new avenues for future research on fair value accounting practices and banking theories.

5. Limitations of the Research

Although this conceptual paper was carefully prepared, we are still aware of its limitations and shortcomings. The conceptualization was done based on the performance of banks in terms of efficiency under the DEA. This conceptual analysis has also not been tested empirically to understand and interpret the impact of fair value.

References

- Adrian, T., & Shin, H. (2010). Financial intermediaries and monetary economics. In: Friedman, B., Woodford, M. (Eds.), *Handbook of Monetary Economics*. *Handbook of Monetary Economics*, 3, 601-650.
- Allen, F., & Santomero, A. M. (2001). What do financial intermediaries do? *Journal of Banking & Finance*, 25, 271-294. [https://doi.org/10.1016/S0378-4266\(99\)00129-6](https://doi.org/10.1016/S0378-4266(99)00129-6)
- Allen, F., & Gale, D. (2004, July). Financial intermediaries and markets. *Econometrica*, 72(4), 1023-1061. <https://doi.org/10.1111/j.1468-0262.2004.00525.x>
- Bencivenga, V. R., & Smith, B. D. (1991, April). Financial intermediation and endogenous growth. *Review of Economic Studies*, 58(2), 195-209. <https://doi.org/10.2307/2297964>
- Benston, G. J. (1964, October). Interest Payments on Demand Deposits and Bank Investments Behaviour. *Journal of Political Economy*, 72(5), 431-449. <https://doi.org/10.1086/258930>
- Berger, A. N., & Humphrey, D. B. (1997). Efficiency of Financial Institutions: International Survey and Directions for Future Research. *European Journal of Operational Research*, 175-212. [https://doi.org/10.1016/S0377-2217\(96\)00342-6](https://doi.org/10.1016/S0377-2217(96)00342-6)
- Berger, A. N., & Mester, L. J. (1997). Inside the Black Box: What Explains Differences in the Efficiencies of Financial Institutions. *Journal of Banking and Finance*, 21, 895-947. [https://doi.org/10.1016/S0378-4266\(97\)00010-1](https://doi.org/10.1016/S0378-4266(97)00010-1)
- Bhattacharya, A., Lovell, C. A., & Sahay, P. (1997). The Impact of Liberalization on the Productive Efficiency of Indian Commercial Banks. *European Journal of Operational Research*, 98(2), 332-345. [https://doi.org/10.1016/S0377-2217\(96\)00351-7](https://doi.org/10.1016/S0377-2217(96)00351-7)
- Borio, C. (2014). The financial cycle and macroeconomics: What have we learnt? *Journal of Banking & Finance*, 45, 182-198. <https://doi.org/10.1016/j.jbankfin.2013.07.031>
- Borio, C., Furfine, C., & Lowe, P. (2001, March). "Procyclicality of the Financial System and Financial Stability: Issues and Policy Options" in "Marrying the Macro- and Micro-prudential Dimensions of Financial Stability. *BIS Working Papers*, 1-57.
- Brunnermeier, M., Crockett, A., Goodhart, C., Hellwig, M., Persaud, A., & Shin, H. (2009). *The Fundamental Principles of Financial Regulation* (Vol. 11).
- Casu, B., Girardone, C., & Molyneux, P. (2006). *Introduction to Banking*. Harlow: FT Prentice Hall.
- Charnes, A., Cooper, W. W., & Rhodes, E. (1978). Measuring the Efficiency of Decision Making Units. *European Journal of Operational Research*, 2, 429-444. [https://doi.org/10.1016/0377-2217\(78\)90138-8](https://doi.org/10.1016/0377-2217(78)90138-8)
- Danielsson, J., Shin, H. S., & Zigrand, J. P. (2004). The impact of risk regulation on price Dynamics. *Journal of Banking and Finance*, 28(5), 1069-1087. [https://doi.org/10.1016/S0378-4266\(03\)00113-4](https://doi.org/10.1016/S0378-4266(03)00113-4)
- Dewatripont, M., Rochet, J. C., & Tirole, J. (2010). *Balancing the Banks: Global lessons from the financial crisis*. Princeton: Princeton University Press.
- DeYoung, R., & Hasan, I. (1998). The Performance of De Novo Commercial Banks: A Profit Efficiency Approach. *Journal of Banking & Finance*, 22(5), 565-587. [https://doi.org/10.1016/S0378-4266\(98\)00025-9](https://doi.org/10.1016/S0378-4266(98)00025-9)

- Diamond, D. W. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy*, 99(4), 689-721. <https://doi.org/10.1086/261775>
- Diamond, D. W. (1996). Financial intermediation as delegated monitoring :ASimpleExample. *Federal Reserve Bank of Richmond Economic Quarterly*, 82(3), 393-414.
- Diamond, D. W. (1997). Liquidity, banks, and markets. *Journal of Political Economy*, 105(5), 928-956. <https://doi.org/10.1086/262099>
- Diamond, D. W., & Dybvig, P. H. (1983, June). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3), 401-419. <https://doi.org/10.1086/261155>
- Diamond, D. W., & Rajan, R. G. (2001). Banks, short-term debt and financial crises: Theory, policy implications and applications. *Carnegie-Rochester Conference Series on Public Policy*. 54, pp. 37-71. North-Holland: Elsevier.
- Dimitras, A. I., Kosmidou, K., & Apostolou, A. K. (2010). Bank Efficiency Estimation and the change of the accounting standards : evidence from Greece. *International Journal of Managerial and Financial accounting*, 2(1), 20-39.
- Dimitras, A., Gaganis, C., & Pasiouras, F. (2018). Financial reporting standards'change and efficiency measures of EU banks. *International Review of Financial Analysis*, Accepted Paper.
- Drehmann, M., Borio, C., & Tsatsaronis, K. (2012, June). Charactorising the Financial Cycle: Don't lose sight of Medium Term. *BIS Working Paper*(380).
- Eatwell , J., Milgate , M., & Newman , P. (1989). The New Palgrave Series, Money. New York: W. W. Norton & Company .
- Ferrier, G., & Lovell, C. A. (1990). Measuring Cost Efficiency in Banking: Econometric and Linear Programming Evidence. *Journal of Econometrics*, 46(1-2), 229-245. [https://doi.org/10.1016/0304-4076\(90\)90057-Z](https://doi.org/10.1016/0304-4076(90)90057-Z)
- Fiechter, P. (2011). The Effects of the Fair Value Option Under IAS 39 On the Volatility of Bank Earnings. *Journal of International Accounting Research*, 10(1), 86-108. <https://doi.org/10.2308/jiar.2011.10.1.85>
- Flamini, V., McDonald, C., & Schumacher, L. (2009). *The Determinants of Commercial Bank Profitability in Sub-Saharan Africa*. International Monetary Fund.
- Fried, H. O., Lovell, C. K., & Eeckaut, P. V. (1993). Evaluating the performance of US credit Unions. *Journal of Banking and Finance*, 17, 251-265. [https://doi.org/10.1016/0378-4266\(93\)90031-8](https://doi.org/10.1016/0378-4266(93)90031-8)
- FSB. (2015). *Meeting of the Financial Stability Board in London on 25 September*. London: Financial Stability Board. Retrieved 12 6, 2017, from <http://www.fsb.org/wp-content/uploads/September-Plenary-press-release.pdf>
- Fukuyama, H., & Weber, W. L. (2017). Japanese bank productivity, 2007–2012: a dynamic network approach. *Pacific Economic Review*, 22(4), 649-676. <https://doi.org/10.1111/1468-0106.12199>
- Fulghieri, P., & Rovelli, R. (1998). Capital markets,financial intermediaries, and liquidity supply. *Journal of Banking & Finance*, 22, 1157-1179. [https://doi.org/10.1016/S0378-4266\(98\)00053-3](https://doi.org/10.1016/S0378-4266(98)00053-3)
- G 20. (2012). *G20 Leaders Declaration*. Mexico: G20 Summit. Retrieved 12 6, 2017, from <http://www.g20.utoronto.ca/2012/2012-0619-loscabos.pdf>
- Gertler, M., & Kiyotaki, N. (2011). Financial intermediation and credit policy in business cycle analysis. In B. Friedman, & M. Woodford, *Handbook of Monetary Economics*. North Holland: Elsevier.
- Gorton, G., & Pennacchi, G. (1990, March). Financial intermediaries and liquidity creation. *The Journal of Finance*, 45(1), 49-71. <https://doi.org/10.1111/j.1540-6261.1990.tb05080.x>
- Greiner, A. J. (2015). The effect of the fair value option on bank earnings and regulatory capital management: Evidence from realized securities gains and losses. *Advances in Accounting, incorporating Advances in International Accounting*, 31, 33-41. <https://doi.org/10.1016/j.adiac.2015.03.005>
- Guo, Z.-Y. (2017). Heavy-tailed Distributions and Risk Management of Equity Market Tail Events. *Journal of Risk & Control*, 4(1), 31-41.
- Gurley, J. G., & Shaw, E. S. (1955). Financial aspects of economic development. *American Economic Review*, 45(4), 515-538.
- Houben, A., Kakes, J., & Schinasi, G. (2004). *Toward a Framework for Safeguarding Financial Stability*. International Monetary Fund, International Capital Markets Department. Washington: International Monetary Fund.

- IFRS Foundation. (2017). *Analysis of the IFRS jurisdiction profiles*. London: IFRS Foundation. Retrieved 12 6, 2017, from <http://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/#analysis>
- Jayasekara, S. D., Perera, K. W., & Ajward, A. R. (2018). Fair Value Accounting Practices and Financial Performance of Commercial banking industry. *World Journal of Social sciences*, 8(3), Accepted Paper.
- Jayasekara, S. G. (2014). Is inefficiency a matter of consolidation of Licensed Finance Companies in Sri Lanka?. *Asian Journal of Research in Banking and Finance*, 4(11), 188-200. <https://doi.org/10.5958/2249-7323.2014.01447.3>
- Jayasekara, S. G. (2015). Does comprehensive banking function improve the efficiency of financial institutions? ; Case of Sri Lanka. *Asian Journal of Research in Banking and Finance*, 5(6), 1-17. <https://doi.org/10.5958/2249-7323.2015.00069.3>
- Kaaya, I. D. (2015). The Impact of International Financial Reporting Standards (IFRS) on Earnings Management: A Review of Empirical Evidence. *Journal of Finance and Accounting*, 3(3), 57-65. Retrieved from <http://pubs.sciepub.com/jfa/3/3/3>
- Kashyap, A. K., Rajan, R., & Stein, J. C. (2002, February). Banks as liquidity providers: An explanation for the coexistence of lending and deposit-taking. *Journal of Finance*, 57(1), 33-73. Retrieved 02 06, 2017, from <http://faculty.chicagobooth.edu/anil.kashyap/research/papers/liquidity.pdf>
- Kashyap, A., & Stein, J. (2004). Cyclical Implications of the Basel II Capital Standards. *Economic Perspectives*, 1, 18-31.
- Kevork, I. S., Pange, J., & Tzeremes, N. G. (2017). Estimating Malmquist Productivity in dexes using probabilistic directional distances an application to the European banking sector. *European Journal of Operational Research*, 261(3), 1125-1140. <https://doi.org/10.1016/j.ejor.2017.03.012>
- Keynes, J. M. (1936). *The General Theory of Employment. Interest and Money*. London: Macmillan.
- Matthews, K., & Thompson, J. (2005). *The Economics of Banking*. Chichester: John Wiley and Sons.
- Myers, S. C., & Rajan, R. G. (1998). The Paradox of Liquidity. *The Quarterly Journal of Economics*, 113(3), 733-771. <https://doi.org/10.1162/003355398555739>
- Naceur, S. B., & Omran, M. (2010). The Effects of Bank Regulations, Competition, and Financial Reforms on Banks' Performance. *Emerging Markets Review*, 12(1), 1-20. <https://doi.org/10.1016/j.ememar.2010.08.002>
- Robin, I., Salim, R., & Bloch, H. (2018). Financial performance of commercial banks in the post-reform era: Further evidence from Bangladesh. *Economic Analysis and Policy*, 58, 43-54. <https://doi.org/10.1016/j.eap.2018.01.001>
- Rodríguez-Pérez, G., Slob, J., Solà M., Torrent, M., & Vilardell, I. (2011). Assessing the Impact of Fair-Value Accounting on Financial Statement Analysis: A Data Envelopment Analysis Approach. *Abacus*, 47(1), 61-84. <https://doi.org/10.1111/j.1467-6281.2011.00331.x>
- Samuelson, P. (1948). *Economics*. New York: McGraw Hill.
- Samuelson, P. A., & Nordhaus, W. D. (1995). *Economics*. New York: McGraw Hill.
- Sathye, M. (2001). X-e • ciency in Australian banking: An empirical investigation. *Journal of Banking & Finance*, 25, 613-630. [https://doi.org/10.1016/S0378-4266\(00\)00156-4](https://doi.org/10.1016/S0378-4266(00)00156-4)
- Schinasi, G. J. (2005). *Safeguarding financial stability: theory and practice*. Washington, D.C.: International Monetary Fund.
- Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons*, 3(4), 91-102.
- Sealey, C. W., & Lindley, J. T. (1977, September). Inputs, Outputs, and a Theory of Production and Cost at Depository Financial Institutions. *The Journal of Finance*, 32(4), 1251-1266. <https://doi.org/10.1111/j.1540-6261.1977.tb03324.x>
- Sherman, H. D., & Gold, F. (1985). Bank Branch Operating Efficiency: Evaluation with Data Envelopment Analysis. *Journal of Banking and Finance*, 9(2), 297-315. [https://doi.org/10.1016/0378-4266\(85\)90025-1](https://doi.org/10.1016/0378-4266(85)90025-1)
- Silva, T. C., Tabak, B. M., Cajueiro, D. O., & Dias, M. V. (2017). A comparison of DEA and SFA using micro-and macro-level perspectives: efficiency of Chinese local banks. *Physica A: Statistical Mechanics and its Applications*, 469, 216-223. <https://doi.org/10.1016/j.physa.2016.11.041>

- Stein, J. C. (2014). Banks as Patient Debt Investors. *American Economic Association/American Finance Association Joint Luncheon*. Pennsylvania: Federal Reserve Bank. Retrieved 02 06, 2017, from <https://www.federalreserve.gov/newsevents/speech/stein20140103a.pdf>
- Tobin, J. (1963, July 24). Commercial banks as creators of money. *Cowles Foundation Discussion Paper 159*, 1-17. Retrieved 02 03, 2017, from <http://cowles.yale.edu/sites/default/files/files/pub/d01/d0159.pdf>
- Tobin, J. (1969). A general equilibrium approach to monetary theory. *Journal of Money*, 1(1), 15-29.
- Wahida, Y. (2011). Technical Efficiency in the Bangladeshi Banking Industry: A Non-Parametric Analysis. *The 2011 Barcelona European Academic Conference*. Barcelona.
- Werner, R. A. (2014). Can banks individually create money out of nothing?- The theories and the empirical evidence. *International Review of Financial Analysis*, 36, 1-19. <https://doi.org/10.1016/j.irfa.2014.07.015>
- Werner, R. A. (2016). A lost century in economics: Three theories of banking and the conclusive evidence. *International Review of Financial Analysis*, 46, 361-379. <https://doi.org/10.1016/j.irfa.2015.08.014>
- World Bank. (2017). *Memorandum of Understanding with the World Bank*. London: IFRS Organisation. Retrieved 12 6, 2017, from <http://www.ifrs.org/-/media/feature/around-the-world/memoranda/world-bank-memorandum.pdf>
- Wu, W., Thibodeau, N., & Couch, R. (2016). An Option for Lemons? The Fair Value Option for Liabilities During the Financial Crisis. *Journal of Accounting, Auditing and Finance*, 31(4), 441-482. <https://doi.org/10.1177/0148558X16645994>